

## CLAIMS

What is claimed is:

1. A mat comprising:

(a) a mat base having a top surface and a bottom surface;

(b) a plurality of long legs perpendicularly attached to the bottom surface of the mat base for resiliently supporting the mat base; and

(c) a plurality of short legs perpendicularly attached to the bottom surface of the mat base for supporting the mat base and modifying the resiliency of the mat, wherein the long legs and the short legs are adapted to provide a selected mat compression when a load is applied to the top surface of the mat.

2. The mat of claim 1, further comprising a plurality of ribs wherein each said rib connects a pair of legs and wherein the length perpendicular to the mat of each said rib is approximately the length of the legs to which it is attached, but not longer than either of the legs to which it is attached, for preventing the mat from becoming embedded within a floor grating upon which it sits.

3. A mat comprising:

(a) a mat base having a top surface and a bottom surface; and

(b) a plurality of channels subdividing the mat top surface into mat segments, wherein each said channel has a floor and a lateral wall surface and wherein the lateral wall surface has a drain opening permitting drainage from the top surface of the mat to below the bottom surface of the mat.

4. A mat comprising:

- (a) a mat base having a top surface and a bottom surface;
- (b) a plurality of grit trenches embedded within the top surface of the mat, wherein each said grit trench has two ends and each said end has a retention lip forming a dam for retaining adhesive and grit; and
- (c) grit bonded into the trenches by an adhesive.

5. A mat comprising:

- (a) a mat base having a top surface and a bottom surface;
- (b) a plurality of long legs perpendicularly attached to the bottom surface of the mat base for resiliently supporting the mat base;
- (c) a plurality of short legs perpendicularly attached to the bottom surface of the mat base for supporting the mat base and modifying the resiliency of the mat, wherein the long legs and the short legs are adapted to provide a selected mat compression when a load is applied to the top surface of the mat;
- (d) a plurality of ribs wherein each said rib connects a pair of legs and wherein the length perpendicular to the mat of each said rib is approximately the length of the legs to which it is attached, but not longer than either of the legs to which it is attached, for preventing the mat from becoming embedded within a floor grating upon which it sits; and
- (e) a plurality of channels subdividing the mat top surface into mat segments, wherein each said channel has a floor and a lateral wall surface and wherein the lateral wall surface has a drain opening permitting drainage from the top surface of the mat to below the bottom surface of the mat.

6. The mat of claim 5 further comprising:

- (a) a plurality of grit trenches embedded within the top surface of the mat, wherein each said grit trench has two ends and each said end has a retention lip forming a dam for retaining adhesive and grit; and
- (b) grit bonded into the trenches by an adhesive.

7. The mat of claim 6, wherein at least one grit trench is supported by some of the long legs perpendicularly attached to the bottom surface of the mat for reducing flexure within the trench.

8. A process for fabricating lateral drain openings into the top surface of a mat, said process comprising:

- (a) molding a mat having a top surface and a bottom surface such that channels subdivide the mat top surface into mat segments, wherein the channels have a floor and a lateral wall surface and wherein a rib is perpendicularly molded into the bottom surface of the mat below each channel; and

- (b) removing material from the floor of at least one channel, at least one of its lateral wall surfaces and its underlying rib to a depth which is below the bottom surface of the mat base, thereby forming drain openings within the lateral walls of the channels.

9. The process for fabricating lateral drain openings into the top surface of a mat of claim 8, further comprising using a grooving tool having a heated blade for removing the material from the floor of each channel and its underlying rib.

10. The process for fabricating lateral drain openings into the top surface of a mat of claim 8,

wherein the material is removed from the floor of each channel and its underlying rib by a process comprising:

- (a) attaching a grooving tool having a heated blade to a programmable cartesian robot;
- 5 (b) programming the programmable cartesian robot to remove the material from the floor of each channel and its underlying rib;
- (c) securing the mat onto the workbed of the programmable cartesian robot; and
- (d) removing the material from the floor of at least one channel, at least one of its lateral wall surfaces and its underlying rib with the programmable cartesian robot
- 10 and the attached grooving tool.

11. A process for bonding grit into trenches embedded within the top surface of a mat, said process comprising:

- (a) attaching an adhesive dispenser to a programmable cartesian robot;
- (b) programming the programmable cartesian robot to fill the trenches with adhesive;
- 15 (c) securing the mat onto the workbed of the programmable cartesian robot;
- (d) filling the trenches with adhesive with the programmable cartesian robot;
- (e) spreading grit over the top surface of the mat; and
- (f) removing excess grit from the mat.